

WHAT IS CLAIMED IS:

1. A polarized light-emitting film comprising: a porous silica film formed on a substrate; and a conjugated polymer held in a plurality of uniaxially oriented, tubular mesopores in the porous silica film, wherein fluorescence emitted from the film is polarized in a direction parallel to the orientation direction of the mesopores.
- 10       2. The film according to claim 1, wherein the film emits fluorescence of which the intensity measured through a polarizer with a polarization direction of the polarizer parallel to the orientation direction of the mesopores is three times or more of the fluorescence intensity measured through a polarizer with a polarization direction perpendicular to the orientation direction of the mesopores.
- 15       20       3. The film according to claim 1, wherein the film is a mesostructured silica film formed using assemblies of molecules of a surfactant as a template.
- 25       4. The film according to claim 1, wherein the porous silica film having the plurality of tubular mesopores is patterned in a desired shape.

5. The film according to claim 3, wherein the substrate is capable of controlling the orientation of the tubular mesopores in the mesostructured silica film formed thereon to one direction.

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6. The film according to claim 1, wherein the substrate is provided with a polymer film formed on a surface thereof, and the polymer film is capable of controlling the direction of the tubular mesopores in 10 the mesostructured silica film formed thereon to one direction.

7. The film according to claim 6, wherein the polymer film has a structural anisotropy in a plane.

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8. The film according to claim 1, wherein the conjugated polymer is poly[2-methoxy-5-(2'-ethyl-hexyloxy)-1,4-phenylene vinylene].

20 9. A method for producing a polarized light-emitting film comprising the steps of:

25 forming on a substrate a mesostructured silica film containing a plurality of tubular molecular assemblies of molecules of a surfactant aligned in one direction;

removing the surfactant from the mesostructured silica film to form hollow tubular mesopores;

reacting the surfaces of the hollow mesopores with a silane coupling agent; and introducing a conjugated polymer into the mesopores.

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10. The method according to claim 9, wherein the method further comprises a step of patterning the mesostructured silica film in a desired pattern, and
- 10 15 wherein the step of patterning is carried out between the step of forming on a substrate a mesostructured silica film containing a plurality of tubular molecular assemblies of molecules of a surfactant arranged in one direction and the step of removing the surfactant from the mesostructured silica film to form hollow tubular mesopores.

- 20 11. The method according to claim 9, wherein the substrate is capable of controlling the orientation of the tubular mesopores in the mesostructured silica film formed thereon to one direction.

- 25 12. A method for producing a polarized light-emitting film comprising the steps of: forming on a substrate a polymer film that is capable of controlling the orientation of tubular mesopores in a mesostructured silica to one

direction;

forming on the polymer film a mesostructured silica film containing a plurality of tubular molecular assemblies of molecules of a surfactant  
5 arranged in one direction;

removing the surfactant from the mesostructured silica film to form hollow tubular mesopores;

reacting the surfaces of the hollow mesopores with a silane coupling agent; and  
10 introducing a conjugated polymer into the mesopores.

13. The method according to claim 12,  
wherein the method further comprises a step of  
15 patterning the mesostructured silica film in a desired pattern, and  
wherein the step of patterning is carried out between the step of forming on a substrate a mesostructured silica film containing a plurality of  
20 tubular molecular assemblies of molecules of a surfactant arranged in one direction and the step of removing the surfactant from the mesostructured silica film to form hollow tubular mesopores.

25 14. A method according to claim 12, wherein the surfactant is removed by calcination.